

CLAIMS

1. Deformation process of an element through the application of controlled pressure on it, characterised in that said pressure is applied through compression means sensitive to the variation of the chemical-physical characteristics of said element when it is subjected to a predetermined temperature.

2. Coupling process between a thermoplastic material and fibres of a composite of co-mixed fibre, characterised in that a calibrated pressure is applied onto the composite realised through compression means sensitive to the variation of the chemical-physical characteristics of said thermoplastic material when it is subjected to a predetermined temperature.

3. Process according to one or more of the previous claims, characterised in that said compression means are made from a heat-shrinking product.

4. Process according to one or more of the previous claims, characterised in that said compression means are made from a tensoelastic product.

5. Process according to one or more of the previous claims, characterised in that said element is made from thermoplastic material.

6. Process according to one or more of the previous claims, characterised in that said element is made from thermoplastic composite material.

7. Process according to one or more of the previous

claims, characterised in that said thermoplastic composite material comprises at least one glass, carbon, Kevlar, natural or metal fibres or a mixture thereof.

8. Process according to one or more of the previous claims, characterised in that said thermoplastic composite material is made with a thermosetting composite material before the polymerisation step.

9. Deformation process of an element through the application of calibrated pressure on it, characterised in that said element is made from thermoplastic material and in that said pressure is realised through compression means arranged on the outer surface of the zone of the element that one wishes to deform and suitable for applying said pressure when said thermoplastic composite element is taken to a temperature at which its chemical-physical characteristics change and it reaches a predetermined degree of malleability.

10. Process for realising an element on a mould, characterised in that said element is made from thermoplastic material that can be applied to the mould and on which calibrated pressure is applied through compression means suitable for applying said pressure when said thermoplastic composite element is taken to a temperature at which its chemical-physical characteristics change and it reaches a predetermined degree of malleability.

11. Coupling process between a thermoplastic material and

fibres of a composite of co-mixed fibre, characterised in that a calibrated pressure is applied onto the composite realised through compression means arranged on the outer surface of said composite of co-mixed fibre and suitable for applying said pressure when said thermoplastic material is taken to a temperature at which its chemical-physical characteristics change in such a way as to determine the impregnation thereof with said fibres.

12. Deformation process of an element according to one or more of the previous claims, characterised in that said element has a core inside of it to configure it with a shape matching it.

13. Deformation process of an element according to one or more of the previous claims, characterised in that said core is removable.

14. Deformation process of an element according to one or more of the previous claims, characterised in that said core is wooden and is integrally connected to said element.

15. Deformation process of an element according to one or more of the previous claims, characterised in that said core is made from plastic and is fixedly connected to said element through a chemical link due to the compatibility of plastic with the resin matrix of the composite.

16. Deformation process of an element according to one or more of the previous claims, characterised in that said core is

an integral part of another element such as a tool or connection member.

17. Deformation process of an element according to one or more of the previous claims, characterised in that said core is made from a thermally conductive material to take said element to said predetermined temperature.

18. Deformation process of an element according to one or more of the previous claims, characterised in that said core has a surface configuration suitable for realising a deformation zone with the same configuration only on the inner surface of said element.

19. Deformation process of an element according to one or more of the previous claims, characterised in that said core has a surface configuration suitable for realising a deformation zone with the same configuration on the inner and outer surface of said element.

20. Deformation process of an element according to one or more of the previous claims, characterised in that said deformation zone is coated with a thermoplastic composite material having arrangement of the fibres perpendicular to those of said element.

21. Deformation process of an element according to one or more of the previous claims, characterised in that said heat shrinking or tensoelastic product is in the form of a sheath, band or cap, to be uniformly associated with the outer surface

of said element at a temperature lower than said predetermined temperature.

22. Deformation process of an element according to one or more of the previous claims, characterised in that said heat shrinking product is activated at an activation temperature close to said predetermined temperature at which said element becomes malleable.

23. Coupling process according to one or more of the previous claims, characterised in that said composite of co-mixed fibre has one or more layers that can be applied to a mould.

24. Coupling process according to one or more of the previous claims, characterised in that at least one insert is present between the layers of said co-mixed fibre composite.

25. Coupling process according to one or more of the previous claims, characterised in that said layers of said co-mixed fibre composite have different orientations of the fibres.

26. Deformed element, characterised in that it is made from thermoplastic material and in that it has a deformation obtained through the action of a heat shrinking or tensoelastic product associated with the outer surface.

27. Use of a heat shrinking or tensoelastic product associated with the outer surface of a thermoplastic composite element for its deformation.

28. Deformation process of an element as described and

claimed.